Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Spring 2008 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources
www.penobscotnation.org/DNR/DNR1.htm

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Wecowsin

Wecowsin means "Air."

By Bill Thompson

Well, chummy, we made it around the bend and now you can smell spring in the air. Why, folks are out and about in their jogging shoes already, even though some still got their snowshoes and gum rubbers on. This is the year we are finally gonna get active, ain't it? This is when we are going to shed those pounds of stubborn winter weight, get out in the sunshine and finally achieve those six pack abs.

Such as all that may be, keep in mind the new ozone standard out from EPA just a couple weeks ago. The new level is lower than before, meaning that EPA has decided to act upon the advice of its scientists, as well as the voices of tribes and communities throughout the land who have been pushing for a more stringent standard for years now. Good job listening, EPA!

So what does this mean for you, when you go outside? Well, the air hasn't suddenly gotten more dangerous, if that's what you were thinking. Instead, it means that when the conditions are right for a large amount of ozone to be produced in the ambient air, you will be getting warnings sooner, at lower levels of the stuff, than before.

Your tribe's Department of Natural Resources' Air Quality Program is putting in place a web-based warning system, to go along with the e-mail generated warnings as from the past couple of summers. When the levels reach a certain point, first those with compromised lung capacity will be warned. If the ozone level gets higher, then those with slightly diminished lung capacity will be warned.

High enough levels will call for everyone to run inside and hide under the bed.
Just kidding. But we will be putting up a sign outside the DNR with daily ozone forecasts on it.

The new levels were fought against by those in the business world, because it means that they will be held even more responsible for the pollution and emissions they generate in going about their activities. But we are all responsible, in our own little ways, for contributing to hazardous ozone formulation.

For those of you who enjoy breathing clean air, or at least appreciate being able to breathe, this little column will begin to branch back out into outdoor ambient air quality, in the coming months, after concentrating solely on indoor air quality during the winter.

It'll be good to get outside more, ain't that right, chummy? I knew you'd say, "Tahoo."

Photo: Martin Neptune

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Wecowsin

Wecowsin means “Air.”

By Bill Thompson

This month’s episode of Wecowsin will focus on our tribe’s air quality program. Grab a cup of your favorite beverage and have a seat. We’ll start with the most basic element of this outreach effort: the logo above. Wecowsin is an anglicized version of a Penobscot word that indeed refers to wind, or air. The manner in which this word is inscribed above should be pretty evident; swirls of air. But note the double curve design. That, of course, is our own tribe’s design, trademark, motif, logo, what have you. It has appeared in our artwork for millennia, because it is an homage to the fiddlehead.

Now, “Why is he going off on fiddleheads when he should be talking about air quality?” you may be asking yourself. Well, hold on a second and I’ll get to that. Trust me, I can tie this all up with bows and streamers for you.

The fiddlehead, as I’m certain you are well aware, is celebrated by our people because it was one of the first edible things to poke its head up out of the ground after the harsh winter. Like it was a gift from Gluskabe for having made it through the hard times. Boy aren’t they delicious.

Well, it was in 1997 that the folks in your tribe’s Department of Natural Resources were wondering about the impact of pollution upon the fiddlehead. Sure, water quality was being tested, and everyone was quite aware of the effluence of the many paper mills upstream of our rez, but what effect was the air pollution having on our food supply? You see, when it rains, the rain drops wash the pollution out of the sky and drop it in condensed form onto the land, into our water supply, on everything that doesn’t have a roof over its head.

It was also at this time that there was leadership in the White House who didn’t absolutely despise the environment, who didn’t see nature as simply something to clear cut, dig up, drill down or otherwise transform into money for an elite few to get their hands on. Requests For Proposals were being

Art: James Francis

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handed out, and tribes were encouraged to add air quality monitoring to their Natural Resources Department. Talk about serendipity. A scoping study ensued, and wouldn't you know it, since there was a dearth of information to be discovered, this indicated a need for further study.

Our tribe's Air Quality Program was created out of our tribe's Water Quality Program's musings about the fiddlehead. There. All tied up. How'd I do?

Fiddleheads don't have fat cells, so they can't store dioxins.

Photo: Joe "Hugga" Dana

* * *

Next stop along this little history tour is the evolution of our tribe's Air Quality Program monitoring components. If that sounds dry, let me put it another way before I lose you to the Community Announcements. "What do we test for, and why?"

Our Air Quality Program exists simply to protect you, dear Penobscot tribal member. Each monitoring device was acquired with your well-being in mind. The following is a list of components and their purpose.

1. Ozone Monitoring Station This is a real-time monitor for a pollutant that can damage otherwise healthy lungs, and cause folks with diminished lung capacity to have a day long episode of trying to catch their breath. When levels are expected to be elevated, I send out a warning over the tribal Gov email system to ask folks to pass the word along: "avoid outside exertion this afternoon." That is when levels get the highest. This month, our tribe will be the sixth in the nation to join the TREX network, the National Tribal Air and Water Quality Monitoring network. On the website, when viewing a map of the whole country, you can hover with your mouse over our tribe and our tribe's insignia will pop up, along with air temp, barometric, humidity, wind, and ozone levels. Pretty sweet. We have been on EPA's online AIRNOW two summers ago, but the Native thing is cooler because it's a Native Thing.

2. Radon Test Kit This is a passive sampling kit that collects radon, an invisible, radio-active gas that emanates from ledge and granite, and can enter a home though cracks in the basement floor. At high enough levels, and over a period of time, radon can cause lung cancer. Houses above the new neighborhood were tested due to concerns about possible cracks in the basement due to the blasting up there. All tested were found to be safe. A second batch is ready to be dispersed, and all twenty are spoken for. A third batch will follow, as we near the months when we button up our homes, and spend more time inside. Let me know if you are interested.

3. Mold Test Kit This is a metered pump that draws air over a Petri dish in an impactor. The dish is sent off to a lab where they incubate and then count and identify the mold. Now when dealing with mold, if you can see it, then it's there. No need to test for it. What you want to do is find out where the moisture is coming from, and stop it. Then bleach the area and cover it up with enamel paint. Removing the material and replacing it is ideal, but sterilizing and encapsulating it works well too.

4. Portable Particulate Matter Filtration These two things are glorified pumps. They suck air through a Teflon filter at a measured

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rate for a period of time. The filter, weighed before and after the test, will reveal if there is a dust problem. Success story: our tribe's Air Quality Program was notified of a situation in March of this year by our tribe's Fitness Room Coordinator. A test was performed using these devices (called Minivols) and levels were indeed found to be elevated. Due to the expeditious response of our tribe's Health Department, utilizing our tribe's Maintenance Department, the matter was resolved with the installation of a high quality flooring made from recycled material. You see, we benefit us all when we work together as one.

5. Meteorological (weather) Station This is what you see atop the tower out in front of the Nicholas Sappiel Building. Guess who climbed up and put it all up there? These devices collect data for Wind Speed, Wind Direction, Barometric Pressure, Solar Radiation, Relative Humidity, and Air Temperature. These data are used in connection with the ozone to produce forecasting capability, so our folks with asthma and emphysema and such can be warned to stay inside to avoid an episode of distress.

6. IMPROVE Shed This is the little sugar shack down by the boat landing. And what a boat landing, huh? Wow. The little building down there contains more glorified pumps that suck air through different types of filters, to check for quite a few different pollutants. While the main reason for its construction was to keep an eye on visibility (get it? sweet pun) it also tracks long term trends as well as *short term episodes of cross-state transport*, which is a fancy way of saying that we can tell the difference between Ohio and Pennsylvania when it comes to a couple of days of nasty out of state air.

7. Acid Rain This site was set up 6 years ago, in Carrabassett Valley. That place is relatively clean, air wise, so this station monitors pollutants that travel from as far away as Texas. After I perform field chemistry on the rain water sample, I ship it off to a place that uses a plasma ray gun on it. Now that is wicked. They can locate a single molecule out of the sample. That's like finding a red golf ball in a football stadium filled with blue ones! This helps us fingerprint the pollution and track it back to the smokestack it came out of. It can stand up in court, if need be.

8. Mercury Collector This past summer was quite the effort up in Carrabassett Valley. Constructing a 500 lb. wooden stand for the new electronic rain gage, sinking a steel post and concrete in one of those cardboard tubes for the robotic device, and trenching lines all over the place for electric, well, let me tell you, it was a labor of love. For every foot you dug down, you had to dig two feet across, to remove the rocks and boulders. Now we are collecting mercury from the air, when it rains. We will be using that data in conjunction with data from water and soil testing for mercury that can be done in cahoots with the University of Maine at Orono.

◆

Well, thank you for joining me on this little tour of our tribe's Department of Natural Resources Air Quality Program. Maybe some other time We'll take a look at the impact and influence the Penobscot Nation has in the environmental field at the National level. You'd be surprised how far our reach is.

Questions and comments may be sent to John Banks, DNR Director, and Bill Thompson, Air Quality Program Manager.

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Photo: Martin Neptune

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Wecowsin

Wecowsin means "Air."

By Bill Thompson

November is here, and doubtless you have been putting plastic up on your windows, placing banking around the bottom outside wall of the house, and letting the dog sleep on the bed again. It looks to be a cold winter coming our way. If you live in an old house like I do, you need all the help you can get to keep it warm. But warm in a smart way.

To stave off the feeling of isolation, instead of wrapping up your windows with that stuff you can't see through, try the newer "crystal clear" poly. I'm not talking about that plastic that you stick to the inside and use a hairdryer on it; that stuff is wicked expensive. No, I'm talking about the plastic that comes in a big roll, and it only costs a little more than the old fashioned stuff. You use this outside and you won't feel so secluded, or end up with cabin fever like that fellow in "The Shining." Instead, you can still keep track of what the neighbors are up to.

In the old days, houses were more drafty than they make them now. A small draft in the cellar at the right place can freeze and burst your water pipes, which always seemed to happen in the middle of the night. Wouldn't you know it, since houses have become air-tight, indoor air quality has suffered. Turns out that those drafts actually provided a source of fresh air that modern houses lack. Prudent housekeeping dictates that you should crank open all the windows every couple days to change the air in the house, if you don't have the drafts to do it for you..

The best invention ever created to remedy the stale indoor air situation is called an air/heat exchange system. It keeps the indoor air fresh and reduces your energy expenses from opening all the windows periodically throughout the winter. Indoor air is exhausted to the outside, and as it goes out, it heats up fresh air coming in from outside. That's pretty smart. These systems are installed in new construction as a matter of course.

They do tend to cost a bit, so if it's not an option for you, stick to the windows thing.

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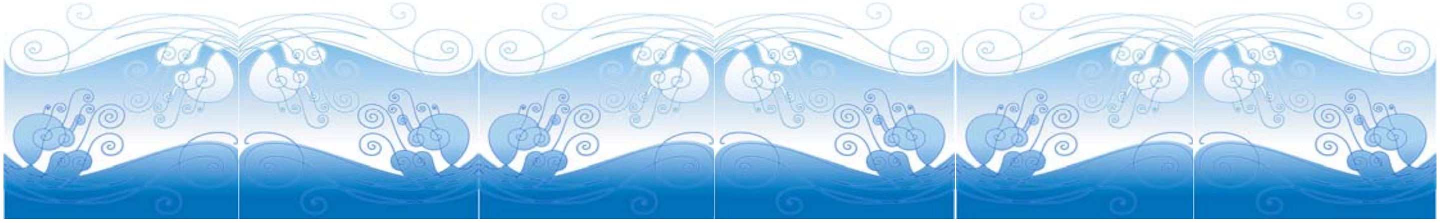

Recently, our tribe's air quality program manager was invited to speak in front of the National Association of Clean Air Agencies (NACAA). These folks are state and big city air program managers, and they were looking to build a bridge with the Native Community. I told them that I can't speak for all tribes, because each tribe is as different as our languages are, but that I would be happy to represent my own tribe in this manner, and speak from my perspective as a single-person air program.

Installing a new ozone inlet.

While I was out there in Phoenix last Tuesday, our Chief asked me to co-chair a committee session for the National Congress of American Indians (NCAI) with former Chief Jerry Pardilla. That was an honor to do. Turns out that our tribe has a lot of clout and credibility in the environmental field, and our Natural Resources Department and its programs are held in high regard on a National level.

We do a lot with what little we get, and that was the point I made in the NACAA presentation. You see, I had an opportunity to chat with some of those big city big wigs before my presentation, and one of them asked why tribes were taking money out of the mouths of the state air programs. I told him, "We don't. Our program money comes from a separate pot of money that EPA sets aside for tribes. Your programs and Native programs do not compete against each other for their program money. Thank you, you've given me something to address in my presentation."

Another person wondered if the money given to tribes wouldn't be better spent letting the nearby towns take over air programs for Natives. I responded with, "tribes have a right to be treated as states, not municipalities of states. It's written into the Clean Air Act." I addressed this in my presentation, and included more slides showing the amount of work it takes to run an air program when you are the only one doing it, instead of like these guys, who have a person for each separate part. "How's that for cost effectiveness?" I asked them. They could only smile and nod.

There is something to be said for folks who work in the environmental field. They tend to do it because they like the outdoors and want to protect it. When you combine that with the fact that you get to work for your tribe doing stuff that helps it, it's a no-brainer. Do you go to work with your tail wagging? Here's hoping that you do.

Questions and comments may be sent to
John Banks, DNR Director, and
Bill Thompson, Air Quality Program Manager.

At five stories up, the tower sways a bit.

Photo: Martin Neptune

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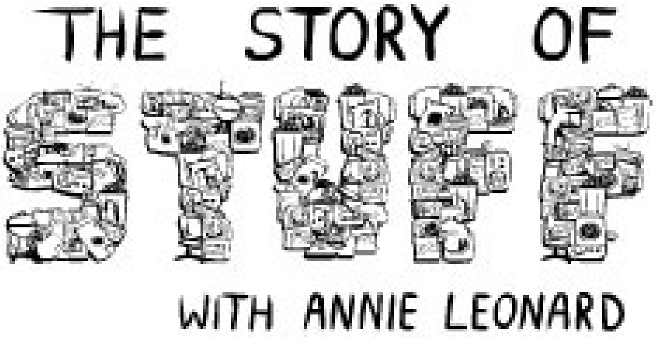
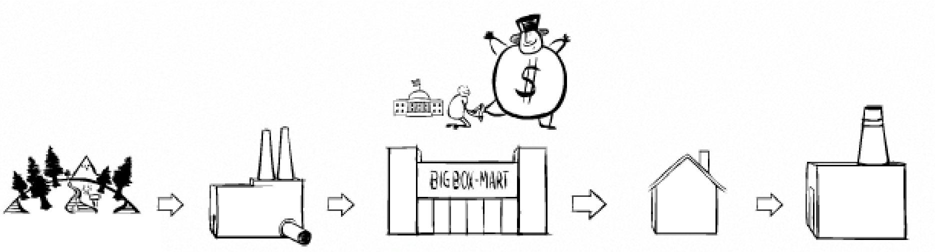
Have you ever wondered where all the stuff we buy comes from and where it goes when we throw it out?



Well this woman named Annie Leonard looked it up and found that the textbooks say that our stuff simply moves along these stages: extraction to production to distribution to consumption to disposal. All together, it's called the materials economy.

But as Annie will tell you in the 20 minute video she made, she found out that this is not the whole story. Annie says,

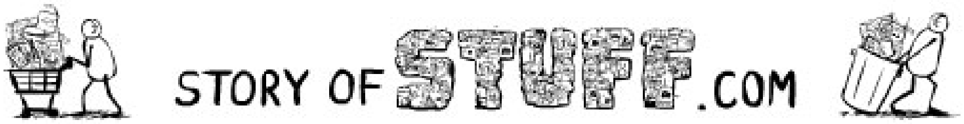


"There's a lot missing from this explanation. For one thing, this system looks like it's fine. No problem. But the truth is it's a system in crisis. And the reason it is in crisis is that it is a linear system and we live on a finite planet and you can not run a linear system on a finite planet indefinitely.

Every step along the way, this system is interacting with the real world. In real life it's not happening on a blank white page. It's interacting with societies, cultures, economies, the environment. And all along the way, it's bumping up against limits. Limits we don't see here because the diagram is incomplete."

To see what's missing from the explanation and get the bigger picture go online to www.storyofstuff.com!

We will also be featuring more of the information in future newsletters!



Learning How to Protect Your River

Just before Thanksgiving the lab at the Department of Natural Resources was full of students from Lee Francis's Native Studies class. Three classes of students were here at various times to check out water samples from the Penobscot River and to have a "hands on" experience of some of the lab tests done here during our sampling season. This is an ongoing collaboration with our department and the Native Studies at the Indian Island School.

The students did not get a chance to go out and take their own samples this year, due to scheduling difficulties. So Jan Paul and Angie Reed collected water samples from above Lincoln Island and at the place where Lincoln Pulp and Paper (LPP) dumps (discharges) their wastewater to have samples of different water conditions.

Unfortunately, not being able to go out and sample left the students less impacted. When they actually get to go see and smell the river near LPP's discharge, it leaves them with a whole different perspective and appreciation for our river, **The Penobscot**. The students were provided with samples for them to do portions of the analyses that is done here on a regular basis. On the first day in the lab, each class got to measure and filter samples for Total Suspended Solids and either observed or participated in the analysis of E. coli. On the second day, students donned blue filtering masks to count E. coli colonies and took turns weighing the filters from the two sampling sights.

Some students took on the role of "recorder" and wrote down weights of filters as students took their turns at the scales and reported individual weights of samples after they had been filtered and allowed to cool after being in a laboratory oven for an hour.

All of the students took away the importance of the DNR Water Program and how we are all working to protect and preserve the natural resources of the Nation's waters. Seeds were planted in all of the students that they too have the opportunity to work and be a part of this important mission of protecting and preserving our river for future generations to enjoy! We hope that with this newsletter we can inspire not only those students but other tribal members as well, to join us and become involved in protecting our sovereignty.

What's up with all of these rocks?

Jason Mitchell

Over the past couple of summers many of you may have noticed rock or "rip-rap" being installed on the banks of Indian Island. This rip-rap is what is referred to as a Best Management Practice or BMP. A Best Management Practice or BMP is installed to prevent NPS from entering a waterbody. In this case the Penobscot River.

Here on Indian Island we have actively eroding riverbanks. Because of a large dam downstream, high flows, boat traffic, and seasonal ice jams, rip-rap and reestablishing a buffer strip of vegetation was selected as a BMP for this problem.

The most recent project completed here on Indian Island was on the banks behind the Shay and Sappier properties. This particular section of riverbank had been eroding for several decades. If a BMP had not been installed soon, there was a real possibility of a house and grave site falling into the river. Also, water quality and aquatic life become threatened from soil and nutrients that enter the river from the site. Through funds awarded to your Tribe's water Resources Department

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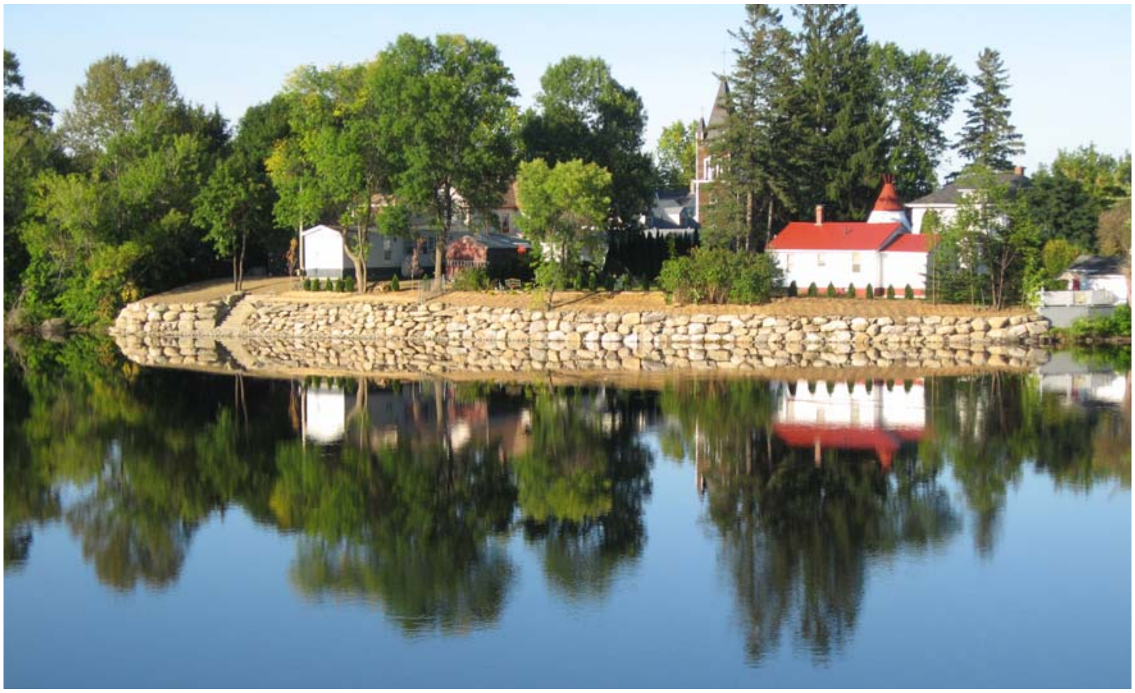
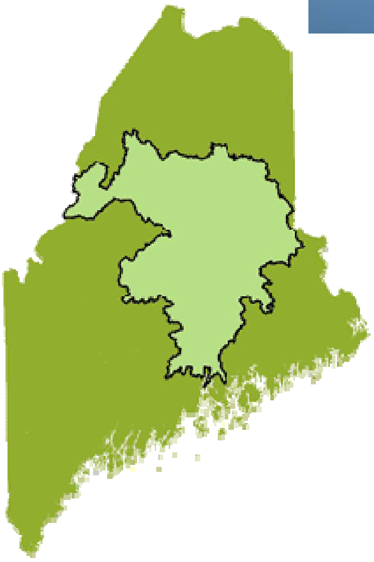
from an EPA Tribal competitive Grant, and with the cooperation of the landowners we have been successful in permanently stabilizing this section of riverbank. This project was a collaborative effort that also included engineers from the United States Department of Agriculture's Natural Resources Conservation Service (NRCS), Thornton's Construction (local contractor), and myself as your Tribes Water Resources Field Coordinator.

To understand nonpoint source (NPS) pollution you must first understand the concept of a watershed. A watershed is the land area - much like a bowl - in which water is collected. As we all know, water flows by gravity down hill, first forming small streams which flow into larger streams into lakes, rivers and eventually the ocean. When a storm event or snowmelt occurs run-off can erode soils and carry pollutants into waterbodies if there is no buffer.





Plant materials stabilize soils by creating a natural buffer that acts like a sponge which absorbs and filters out pollutants before they come into contact with waterbodies.

Here on Indian Island we live in the Penobscot watershed. Our watershed is roughly 1/3 of the State of Maine. Keeping NPS Pollution out of the watershed is a big task; a task that starts right here on the Reservation, and will continue by working with other community's throughout the watershed.

This project is one of several here on Indian Island. There are also several additional projects currently funded to be carried out here on Tribal Trust lands.

If you have any questions or concerns you can talk to me by stopping by my office in the Nick Sapiel Jr. Building or call 817-7381.

CAN YOU SMELL IT?

If anyone detects an odor that they think may be coming from the Juniper Ridge Landfill in West Old Town, please call this number to report it.

394 - 4376

It's important that folks use this complaint line to report odors so that the company knows when and where the odors are being noticed. The state is in the process of rulemaking to establish regulations to address the landfill odor problem. Thanks for your help!

Photo: Martin Neptune

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The Story of Stuff - Step #1
Extraction

In the 20-minute video called "The Story of Stuff," Annie Leonard provides her description of the first step of the process in making stuff - extraction. In Annie's words,

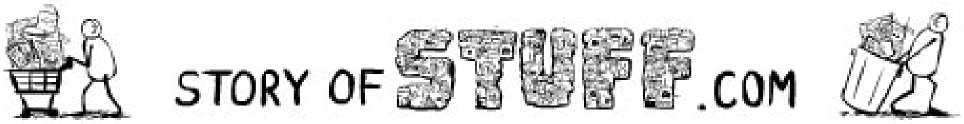
"Extraction is a fancy word for natural resource exploitation which is a fancy word for trashing the planet. What this looks like is we chop down trees, we blow up mountains to get the metals inside, we use up all the water and we wipe out the animals. So here we are running up against our first limit. We're running out of resources.
We are using too much stuff. Now I know this can be hard to hear, but it's the truth and we've gotta deal with it. In the past three decades alone, one-third of the planet's natural resources base have been consumed. Gone.

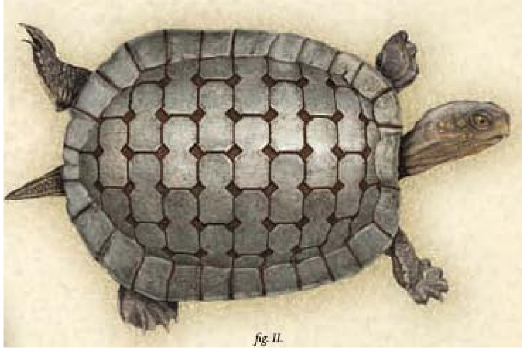
…. in the United States, we have less than 4% of our original forests left. Forty percent of waterways have become undrinkable. And our problem is not just that we're using too much stuff, but we're using more than our share.

The U.S. has 5% of the world's population but we're consuming 30% of the world's resources and creating 30% of the world's waste. If everybody consumed at U.S. rates, we would need 3 to 5 planets."

To hear more of the story and get the bigger picture go online to www.storyofstuff.com!

We will also be featuring more of the information in future newsletters!



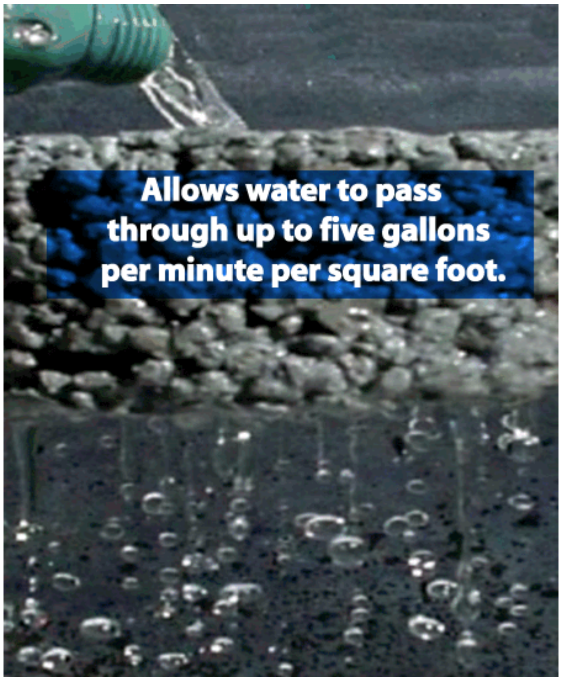


Creating more space for water

By Angie Reed

So I was kicking back watching the HGTV show Rock Solid when I learned about this incredibly cool new product. On this episode (**www.diynetwork.com/diy/gr_lawns_landscaping/article/0,2029,DIY_13852_5848669,00.html**) the guys were flexing their green-muscles and using a bunch of eco-friendly materials. One of them was the paver they used for the driveway and path across the front lawn leading to the door. This paver is closely linked to a topic we Water Resources staff focus on a lot - water running off the surface of the ground and the potential pollution it carries.

The paver is named "Aqua-Stone" (**www.drymixproductsco.com/Aquastone.html**) and it looks like a huge Rice Krispie square. What is unique about them are the spaces between the particles used to make the concrete. This means that water can flow THROUGH it. And if you haven't already imagined there are some big benefits to this ability.


Allows water to pass through up to five gallons per minute per square foot.

The benefit that immediately came to my mind (yes, I am always thinking about how to improve and protect water quality) was that there would be less water running off of solid surfaces and into the river. Of course, this means less chance for any form of pollution to go into the river with that water. Instead, the water gets a chance to have more space to do what water really wants to do when it hits the ground: flow down into the soil, nourish the plants and animals there, allow the soil to provide a cleansing effect and recharge our groundwater drinking supplies. So this is the primary reason why I decided to write this article and share this information.

Another one of the benefits of this kind of a product is that there is MUCH less water to puddle up on the surface. You can imagine that this means fewer puddles to walk through in the warm weather AND less ice buildup in the cold weather. This leads to the next cool result of less water on the surface - using fewer chemicals to melt the ice! So, in addition to reducing the runoff carrying pollution, we have also reduced a potential source of pollution AT THE SOURCE! There have been numerous studies done on streams in the northeast that reveal an increase in salt concentrations in the water. We use a LOT of salt on our roads and walkways.

So one of the words you will see associated with this kind of paver is permeable - describing the process of water filtering down to the soil rather than building up and running off. However, don't be fooled into thinking that all pavers that are called permeable function in the same way. I was. Some companies advertise permeable pavers but what they really mean is "permeable interlocking concrete pavement" or ICIP. There is an official group of people who study, design and certify various aspects of ICIP - the Interlocking Concrete Pavement Institute (ICPI). One of their web pages (**www.icpi.org/design/permeable_pavers.cfm**) describes the interlocking permeable paver concrete as being *"comprised of a layer of concrete pavers separated by joints filled with small stones. Water enters joints between solid concrete pavers and flows through an "open-graded" base, i.e. crushed stone layers with no small or fine particles. The void spaces among the crushed stones store water and infiltrate it back into the soil subgrade. The stones in the joints provide 100% surface permeability and the base filters stormwater and reduces pollutants."* The site also has a great video showing a hose running continuously without any water buildup on the surface.

Illustrating the ability of rain to flow into the spaces between the pavers and not remain on top.

The ICPI also describes other permeable paving methods - pervious concrete and porous asphalt. They provide a comparison of these methods at this link - **www.icpi.org/myproject/ICPI_PICPcenterspread.pdf**. The University of New Hampshire's Stormwater Center has been doing a lot of research on its functionality and performance in cold climates. It turns out that it does pretty well. On one of their web pages (**http://stormh2o.com/september-2008/pervious-asphalt-concrete.aspx**), the results of a study on pervious asphalt are quoted as saying:

"By design, an open-graded, well-drained porous pavement system incorporating significant depth will have a longer life cycle from reduced freeze-thaw susceptibility and greater load-bearing capacity than conventional parking lot pavements."

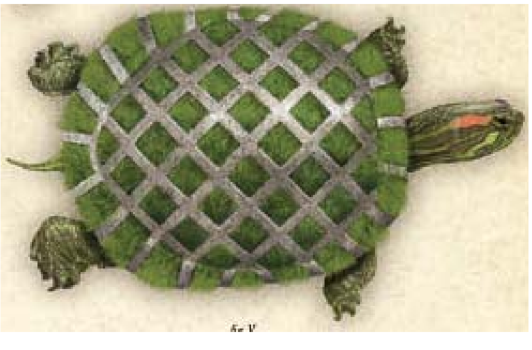
"Throughout the research period, the study found that surface runoff did not occur from the parking lot, even though the Northeast region experienced an increase in extreme storm events."

The Stormwater Center is still conducting research on the performance of pervious concrete in this climate. Check out their home page for more information - **www.unh.edu/erg/cstev/**.

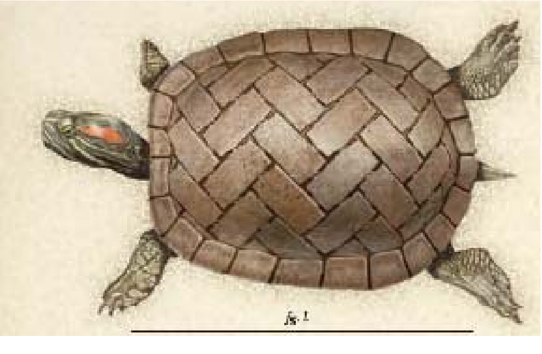
The challenge with the pavers that are actually permeable and pervious asphalt or concrete is that it is not yet widely available. AquaStone is only made in California but can be shipped. Locally, you can get pavers that can be installed in a permeable fashion.

Belgard Hardscapes (the source of the turtle paver images in this article) makes their line of "environmental pavers" - **www.belgard.biz/environmental-pavers.htm**. They have a representative in NH and from their web site you use a zip code search to find the local dealer in Bangor.

A Maine-based company called Genest makes a product called "Stormwater Brick" - **www.genestconcrete.com/architects/genest_stormwater_brick/**



So if you are thinking about any home improvement projects, consider using some permeable products. We will keep bringing you more information about these and other eco-friendly products in the future.



CAN YOU SMELL IT?

If anyone detects an odor that they think may be coming from the Juniper Ridge Landfill in West Old Town, please call this number to report it.

394 - 4376

It's important that folks use this complaint line to report odors so that the company knows when and where the odors are being noticed. The state is in the process of rulemaking to establish regulations to address the landfill odor problem. Thanks for your help!

Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Winter 2008 ~ Issue 3

Penobscot Indian Nation
Department of Natural Resources
www.penobscotnation.org/DNR/DNR1.htm

Phone Extensions

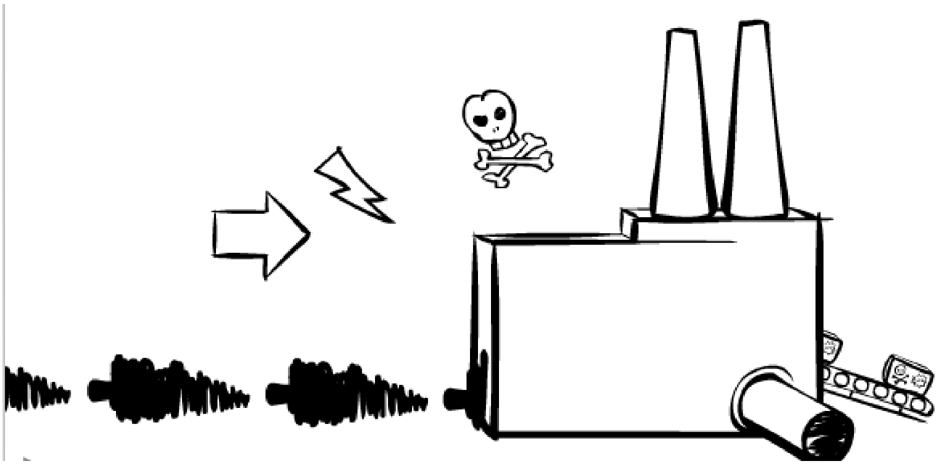
David Almenas, *Forest Technician*	*7335*
Michelle Attean, *Water Resources Trainee*	*7381*
Ron Bear, *Forest Technician*	*7335*
John Banks, *DNR Director*	*7330*
Rhonda Daigle, *Water Quality Monitoring Program Coordinator*	*7326*
Yvonne "Cookie" Francis, *Administrative Assistant*	*7331*
Tim Gould, *Game Warden Supervisor*	*7395*
Dan Kusnierz, *Water Resources Program Manager*	*7361*
Jason Mitchell, *Water Resources Field Coordinator*	*7381*
Ed Paul, *Game Warden*	*7392*
Jan Paul, *Water Resources Field and Lab Technician*	*7382*
Kristin Peet, *Big Game Biologist*	*7363*
Angie Reed, *Water Resources Planner*	*7360*
Russ Roy, *Forest Manager*	*7339*
Dennis Stevens, *Forester*	*7337*
Bill Thompson, *Air Quality Program*	*7340*
Binke Wang, *GIS Specialist*	*7341*

The Story of Stuff - Step #2 Production

After extraction, the next step in "The Story of Stuff" is production. During production, Annie Leonard describes:

"we use energy to mix toxic chemicals in with the natural resources to make toxic contaminated products.

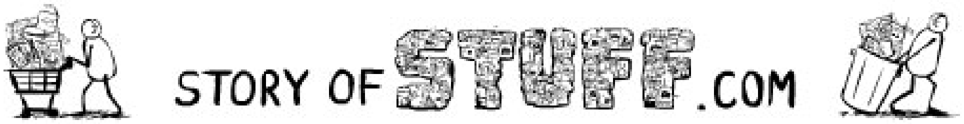
There are over 100,000 synthetic chemicals in commerce today. Only a handful of these have even been tested for human health impacts and NONE of them have been tested for synergistic health impacts, that means when they interact with all the other chemicals we're exposed to every day.



So, we don't know the full impact of these toxics on our health and environment of all these toxic chemicals. But we do know one thing: Toxics in, Toxics Out. As long as we keep putting toxics into our production system, we are going to keep getting toxics in the stuff that we bring into our homes, our workplaces, and schools. And, duh, our bodies."

To hear more of the story and get the bigger picture go online to www.storyofstuff.com!

We will also be featuring more of the information in future newsletters!



Protecting Our River

By Jan Paul

When warmer days arrive, so does my favorite time of the year "Sampling Season!" Sampling Season for our Water Resources Program means from early May to the end of October. This is the time we collect water samples from rivers, lakes, and tributaries that are within or have a direct impact on our land and waters.

The areas on the Penobscot that we sample are as far north as Whetstone Falls, T4 R7 WELS on the east branch and to Rte. 11 Bridge T3 Indian Purchase on the west branch, and the most southern site is in Orono. The site farthest to the east is on the Stud Mill Rd. Bridge in Milford, and a tributary to the river. The site to the west is our Snow Mountain Pond in Alder Stream Township. I encourage you to go see just how beautiful our lands and waters truly are, so you will know how I feel about protecting them.

When I first got hired it was my duty to go out and protect our river from pollutants. Now it is my added privilege to keep an eye out for aquatic invasive plants that might infest our waters. I do hope that this article will persuade you in helping me protect our waters. Last year we tried to sponsor a plant patrol on a segment of the river, but there wasn't enough interest. I would like to try again this year.

KNOW WHAT IS ALREADY THERE

The first step to identifying an invasive plant is just to start being aware of your surroundings. For example, notice if the boats that are launching are clear of plant debris from all equipment. Look at the plants around the boat landing as well as the ones that are visible throughout the river. Know what is already there! That way you will be able to identify a plant that is out of the ordinary. Please do not attempt to retrieve the plant until you are qualified to do so because it only takes a small piece of the plant for it to grow another one. To be qualified, all you have to do is sign up for a free identification class with the Maine Volunteer Lake Monitoring Program. Go on-line to: **www.mainevolunteerlakemonitors.org/workshops/#IntroIPP**. Once the current year's schedule has been set this site will give you dates and types of workshops available throughout the summer. If by chance you do not have access to a computer, just come in and I will help you sign up for one or two.

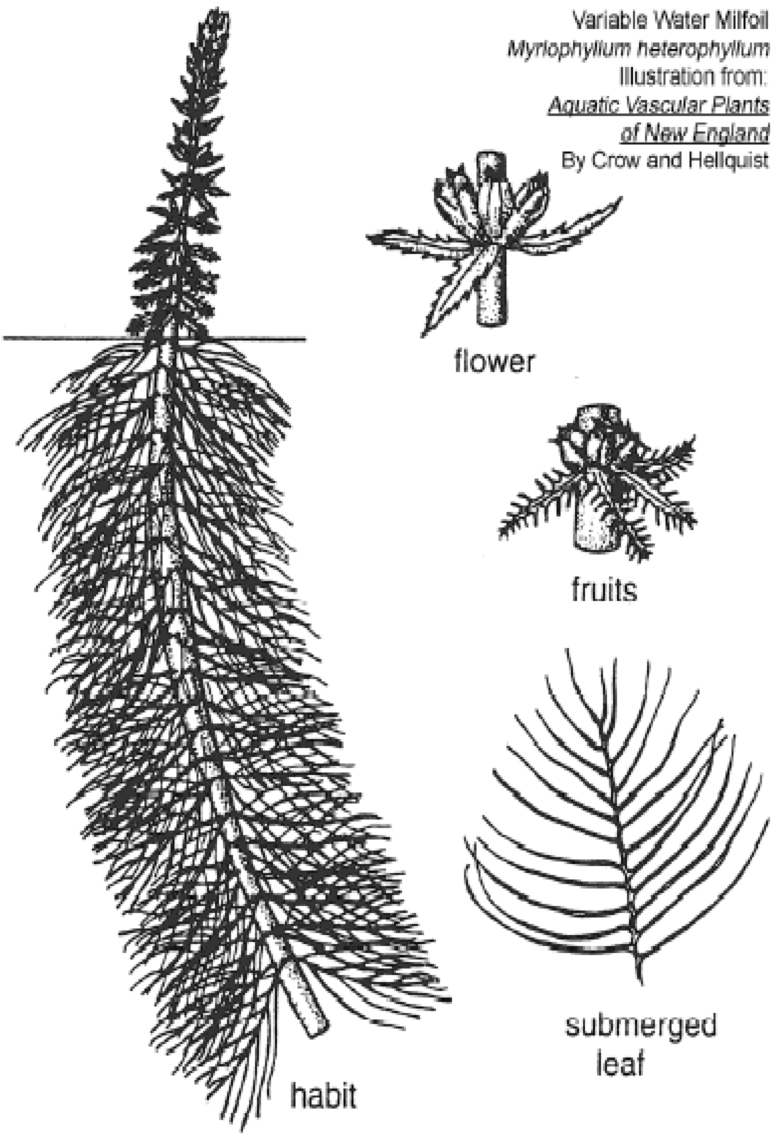
Invasive plants can be found on land as well as in the water, but for the most part I would like to concentrate on those that might clog tribal waterways and possibly kill them. There are eleven on the most wanted list in Maine, including:

European Frog-Bit,
Water Chestnut,
Yellow Floating Heart,
Fanwort,
Eurasian Water-Milfoil,
Variable Water-Milfoil,
Invasive Variable Water-Milfoil Hybrid,
Parrot Feather,
Brazilian Waterweed,
Curly-Leaf Pondweed,
European Naiad, and
Hydrilla

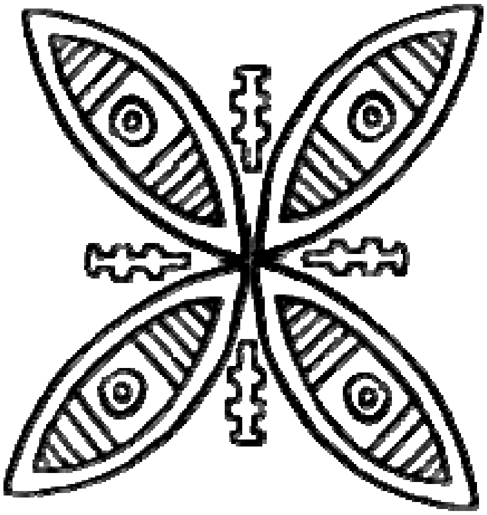
Four of these eleven are already in Maine - check out the map with this article! It is up to us to stop the rest!

VARIABLE WATER-MILFOIL

So I would like to focus on one at a time, starting with Variable Water-Milfoil because it has already been found just south of Fairfield in Messalonskee Lake and Belgrade Stream. Most of our native aquatic plants are perennials, and the invasive plant only goes dormant in the winter months. This allows the predator to continue to grow in the warmer months instead of starting from scratch - giving it a competitive advantage over our native species. Variable Water-Milfoil is an extremely well adapted plant, able to thrive in a wide variety of environmental conditions. It can clog shorelines and shallow areas of up to 17 feet deep, and can grow on various types of sediment such as organic muck, silt, sand, and gravel. This pretty much describes the entire bottom of our river. If water levels drop enough so that the plants are completely exposed, it will erect spikes that are called "terrestrial morphs." The morphs, resembling miniature pine trees, will remain in this land adapted form until the water returns, at which time they will change (morph) back into a submersed aquatic plant.


Variable Water Milfoil
Myriophyllum heterophyllum
Illustration from:
Aquatic Vascular Plants of New England
By Crow and Hellquist

Variable Water-Milfoil is an underwater aquatic plant with limbs growing from the trunk or main stem of the plant. The leaves resemble feathers and are arranged in a compact circle around the stem called "whorls." Whorls are circular and resemble the end of an ash bookmark. Although most of the plant is underwater, it does have a flower spike and bracts which are specialized leaves that are above the water. Each whorl usually has 4 to 6 feather-like leaves. Each leaf has 5 to 14 pairs of hair-like petals. The leaf arrangement gives this plant a bottle brush appearance. The part above water have specialized leaves or bracts which are blade-shaped, saw like, and are usually bigger than the flower. Stems maybe green in color and skinny, but mostly they are thick, robust, and reddish in color (even bright red). The flower spikes are located in the angle between the upper sides of the leaf or stem. Winter buds, or turions, are a thick fleshy young shoots that are formed in the fall at the base of the stem or on the roots.

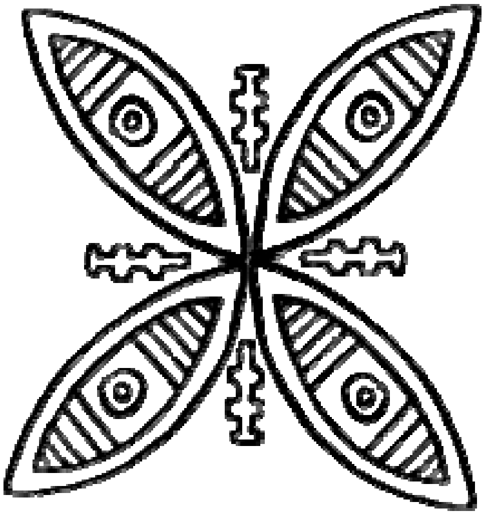


I know that this is a lot to take in, and by no means do I think this will make you an expert at identifying these invasives. I am just hoping that I can help you to love our waters as much as I do and help with keeping an eye out for these bad boys.

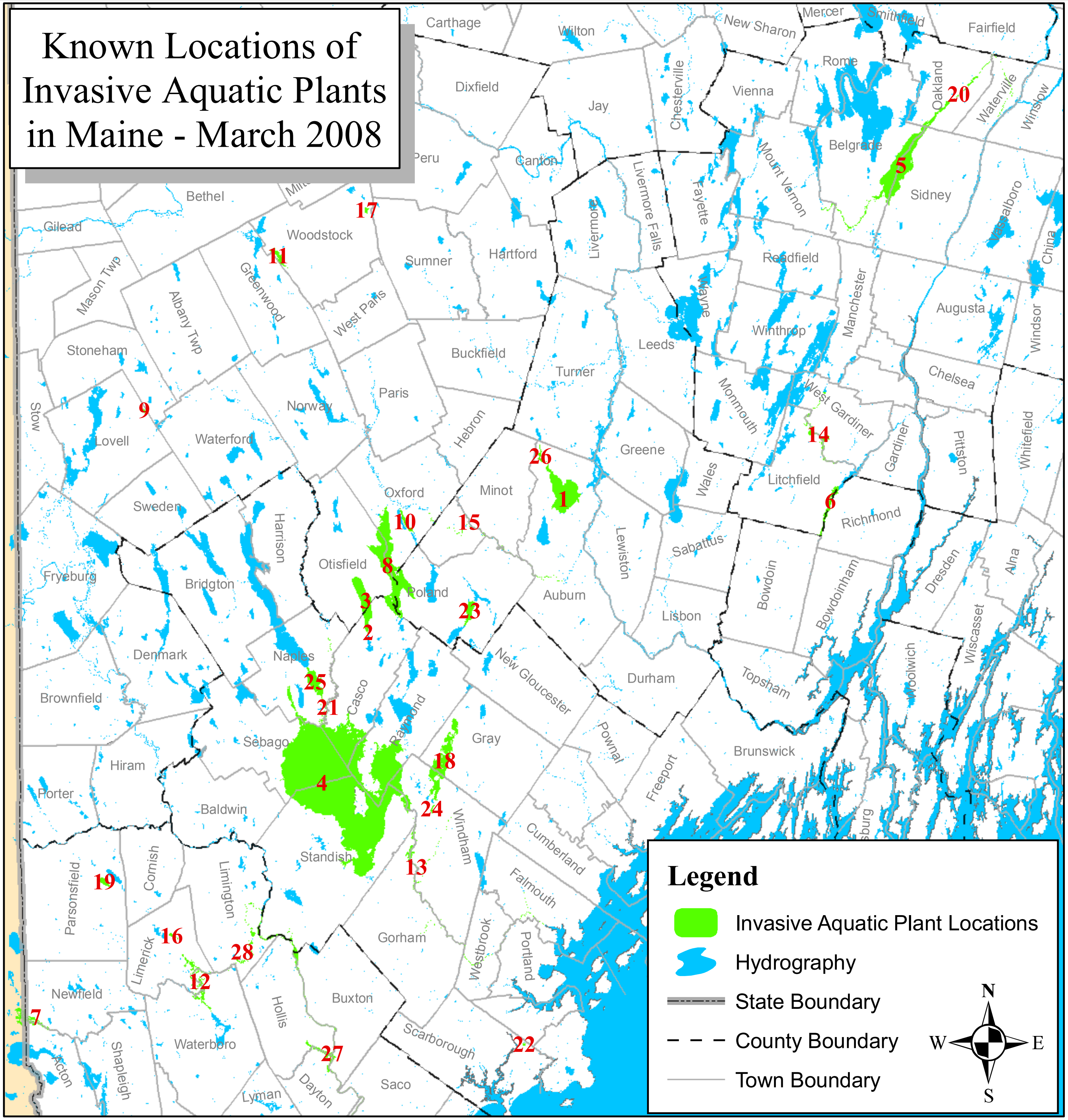
So please feel free to call me at
817-7382

email me at
Jan.Paul@penobscotnation.org

or come in and talk with me.

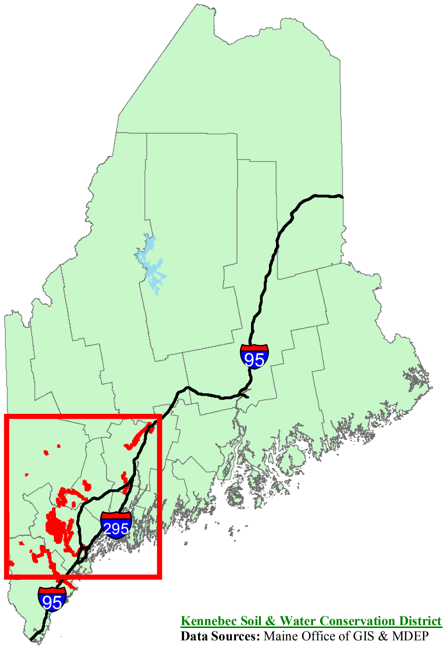


Known Locations of Invasive Aquatic Plants in Maine - March 2008



ID	Name	Invasive Aquatic Plant
1	Lake Auburn	Variable Leaf Milfoil
2	Lily Brook	Variable Leaf Milfoil
3	Pleasant Lake	Variable Leaf Milfoil
4	Sebago Lake	Variable Leaf Milfoil
5	Messalonskee Lake/ Belgrade Stream	Variable Leaf Milfoil
6	Pleasant Pond	Variable Leaf Milfoil
7	Balch Pond	Variable Leaf Milfoil
8	Thompson Lake	Variable Leaf Milfoil
9	Cushman Pond	Variable Leaf Milfoil
10	Hogan Pond	Variable Leaf Milfoil
11	Bryant Pond	Variable Leaf Milfoil
12	Lake Arrowhead	Variable Leaf Milfoil
13	Presumpscot River including N. Gorham Pond	Variable Leaf Milfoil
14	Cobbossee Stream	Variable Leaf Milfoil
15	Little Androscoggin River	Variable Leaf Milfoil
16	Pickerel Pond	Hydrilla
17	Shagg Pond	Variable Leaf Milfoil
18	Little Sebago Lake	Variable Leaf Milfoil Hybrid
19	West Pond	Curly-leaved Pondweed
20	Messalonskee Stream	Variable Leaf Milfoil
21	Songo River	Variable Leaf Milfoil
22	Pleasant Hill Pond	Eurasian Water Milfoil
23	Middle Range Pond	Variable Leaf Milfoil
24	Collins Pond	Variable Leaf Milfoil Hybrid
25	Brandy Pond	Variable Leaf Milfoil
26	The Basin	Variable Leaf Milfoil
27	Skelton Flowage in Saco River	Variable Leaf Milfoil
28	Little Ossipee River	Variable Leaf Milfoil

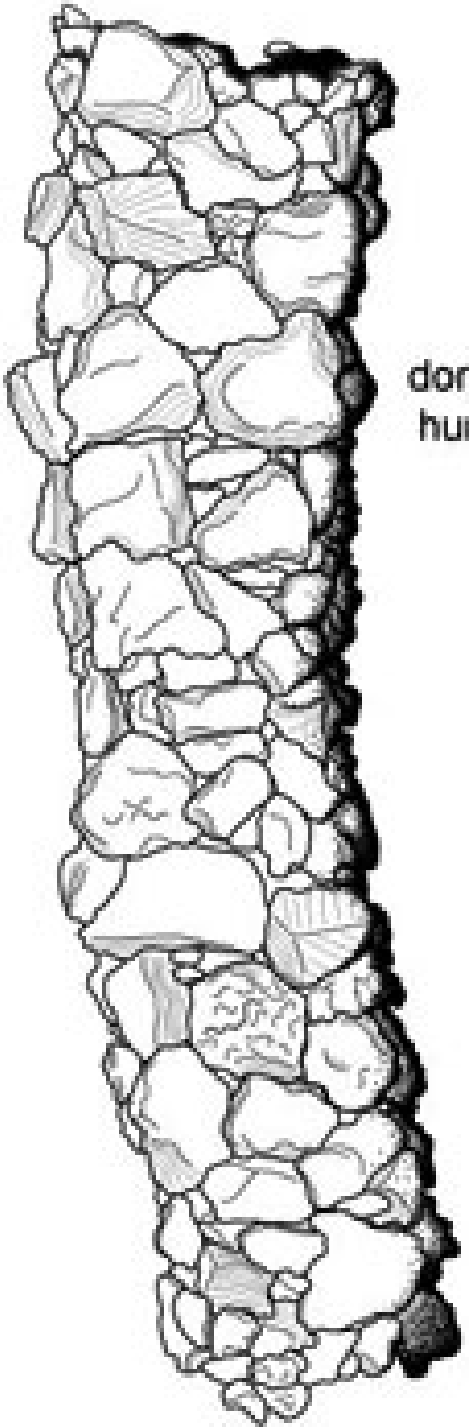
www.maine.gov/dep/blwq/topic/invasives/index.htm



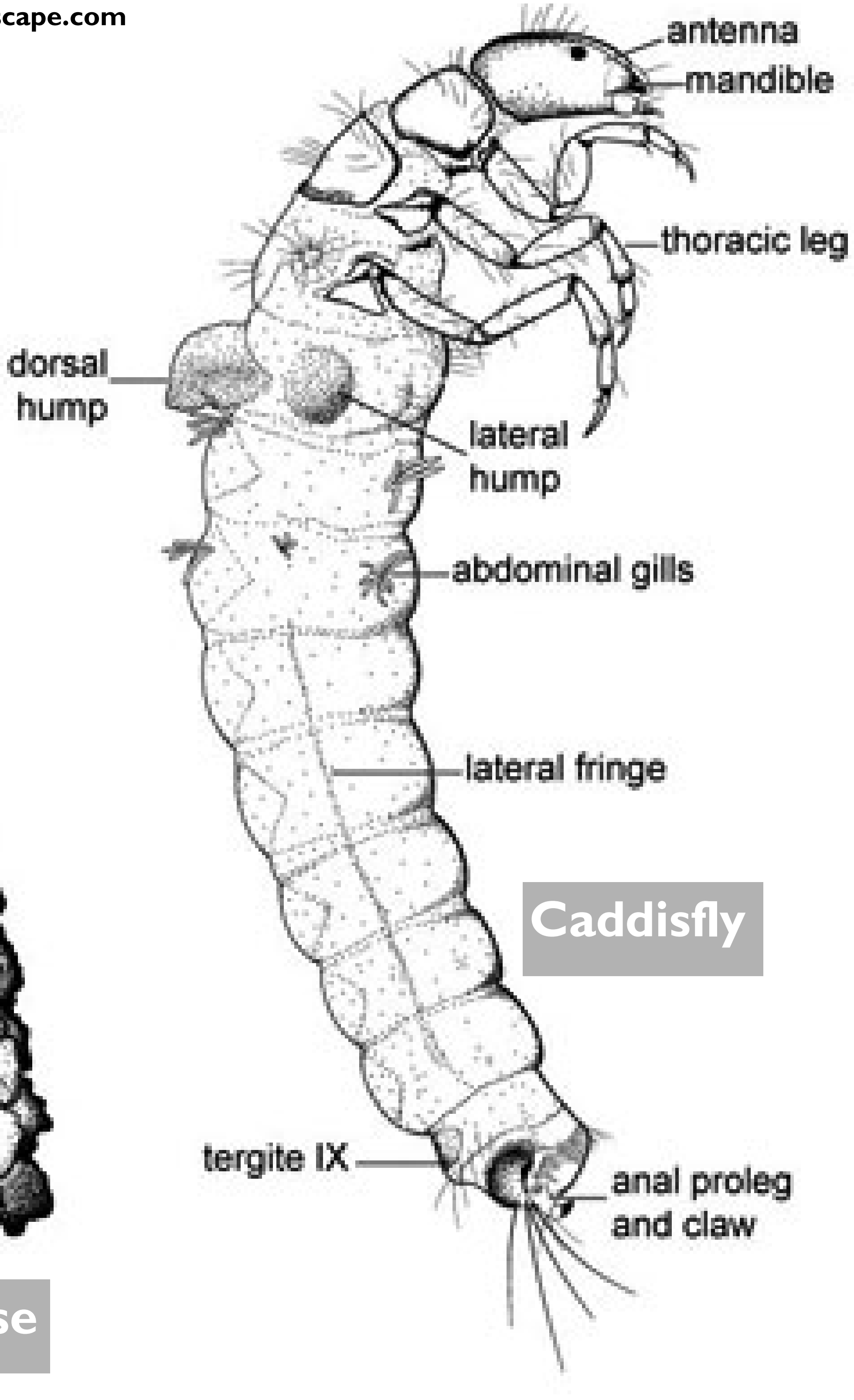
Kennebec Soil & Water Conservation District
Data Sources: Maine Office of GIS & MDEP
Map Revised: 01/07/08 by: J. Fredenburg

CADDISFLY COLORING PAGE

These critters often have a fun green shade to them but you could make them any color you want! The cases they build come in a wide variety of shades - especially when they are made for jewelry. Check out some of the jewelry at **wildscape.com**



Caddisfly Case



Caddisfly

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